

Patent Claims

1. A charge intercooler for a motor vehicle, comprising a heat exchanger unit with tubes (3) through
5 which charge air can flow and comprising air boxes (1) which are connected to the tubes (3) and have a charge air inlet and a charge air outlet, characterized in that some of the tubes can be closed.
- 10 2. The charge intercooler as claimed in claim 1, characterized in that some of the tubes can be closed by a shut-off member (4, 10, 15, 16).
- 15 3. The charge intercooler as claimed in claim 2, characterized in that the shut-off member (4, 10, 15, 16) is arranged in the charge air box (1, 6, 11).
- 20 4. The charge intercooler as claimed in claim 2 or 3, characterized in that the shut-off member (15, 16) is arranged in the region of the charge air inlet.
- 25 5. The charge intercooler as claimed in claim 2 or 3, characterized in that the shut-off member (10) is arranged in the region of the charge air outlet (6b).
- 30 6. The charge intercooler as claimed in one of claims 2 to 5, characterized in that the shut-off member is designed as a pivotable flap (4) with a laterally arranged pivot axis (5).
- 35 7. The charge intercooler as claimed in claim 6, characterized in that the tubes (3) form a row R and have tube ends (3a) which are accommodated in a tube plate (5) of the air box (1), and in that the pivot axis (5) is arranged in the direction of the tube row (R) and next to the tube ends (3a) in the region of the tube plate (5).

8. The charge intercooler as claimed in claim 7, characterized in that the flap (4) is in particular of approximately rectangular design and, in the closure position, rests on the tube ends (3a).

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9. The charge intercooler as claimed in claim 8, characterized in that the flap has at least one cutout for one or more nonclosable tubes.

10. The charge intercooler as claimed in one of claims 2 to 5, characterized in that a partition (7, 12) is arranged in the air box (6, 11) and divides the air box into two chambers (8, 9; 13, 14) with two flow cross sections (13a, 14a); and in that one flow cross section (13a) can be closed by the shut-off member (10, 15, 16).

11. The charge intercooler as claimed in claim 10, characterized in that the shut-off member is designed as a rotary slide.

12. The charge intercooler as claimed in claim 10 or 11, characterized in that the chambers (13, 14) and the partition (12) merge in a funnel-shaped manner into a connecting pipe (11b) in which the shut-off member (15, 16) is arranged.

13. The charge intercooler as claimed in claim 12, characterized in that the shut-off member (15) is designed as round flap with a central pivot axis (15).

14. The charge intercooler as claimed in claim 12, characterized in that the shut-off member is designed as a round, partially cut-out flap (16) with a lateral pivot axis (16a) or a central pivot axis (16b).

15. The charge intercooler as claimed in claim 12, characterized in that the shut-off member is designed

as a half-round flap with a lateral or central pivot axis.

16. The charge intercooler as claimed in one of claims
5 2 to 5, characterized in that the shut-off member has covering sections for individual tubes, which covering sections are mounted such that they can be displaced and/or rotated together.

10 17. The charge intercooler as claimed in one of the preceding claims, characterized in that some of the tubes can be completely closed.

15 18. The charge intercooler as claimed in one of the preceding claims, characterized in that some of the tubes can only partially be closed.

19. The charge intercooler as claimed in one of the preceding claims, characterized in that all of the
20 tubes can at least partially be closed.

20. A charge intercooler (20) for a motor vehicle, comprising a heat exchanger unit (21) with tubes through which charge air can flow and comprising air
25 boxes (22, 23) which are connected to the tubes and have a charge air inlet (24) and a charge air outlet (25), characterized in that one charge air box (22) is divided by a transverse partition (26) into an entry chamber (24a) and an exit chamber (25a) which
30 respectively have the charge air inlet (24) and the charge air outlet (25), in that the other charge air box (23) is designed as a deflecting box and in that a shut-off member (27) is arranged in the transverse partition (26).

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21. The charge intercooler as claimed in claim 20, characterized in that the shut-off member is designed

as a flap, in particular as a round pivoting flap (27) with a central pivot axis.